This Scheme is based on the ORDINANCE -14 (2) PRINCIPLE (13/05/2025), of M.P Higher education ministry and UGC guidelines of NEP 2020

VAC Syllabus

Program			
Subject: Botany	**Class: M.Sc. II semester**	**Year: 2025**	**Session: 2025-26**
1	Course Code	EESC (Employability, Entrepreneurship, Skills Courses)	
2	Course Title	*Scientific research employability and entrepreneurship*	
3	Course Type	VAC (Value Added Courses)	
4	Pre-Requisite (if any)		
5	Course Learning Outcome (CLO)	• To understand the principles and processes of scientific research and inquiry • To develop core employability skills relevant to research careers in academia and industry • To identify and evaluate opportunities for science-based innovation, entrepreneurship and • To know entrepreneurial tools such as design thinking and business modeling to real-world problems • To understand ethical, legal, and societal aspects of research and start-ups	
6	Credit Value	2	
7	Total Marks	**Max. Marks: 100**	**Minimum Passing Marks: 40**

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Part – B Content of the Course

Total No. of Lectures – Tutorials – Practical (in hour per week): 2 hours per week

S. No.	Topics	No. of Lectures
I	**Foundations of Scientific Research**• Nature and purpose of research in science• Types of research: basic, applied, and translational• Formulating research questions and hypotheses• Research design and methodology basics	06
II	**Employability Skills for Researchers**• Critical thinking and analytical reasoning• Communication and scientific writing• Digital tools for research and collaboration• Resume writing, interviews, and job readiness	06
III	**Introduction to Entrepreneurship and Innovation**• Concept of entrepreneurship in science and technology• Innovation models: Design thinking, Lean Startup• Science-based start-ups: Case studies from India and globally• Entrepreneurial mindset and opportunity identification	06
IV	**Building a Career through Research and Innovation**• Bridging research and industry: Technology transfer, incubators• Funding sources: Government (DST, DBT, MSME), private investors, international grants• Patent basics and intellectual property rights (IPR)• National innovation and Startup Policy (NISP), NEP 2020 provisions	06
V	**Ethics, Sustainability, and Impact in Research & Business**• Research ethics and scientific integrity• Sustainable development goals (SDGs) in research and innovation• Social entrepreneurship and inclusive innovation• Responsible research and innovation (RRI)	06

Activities: As per the need of the department.
Assignments: As per the need of the department.

Part C Learning Resources

Text Books, Reference Books, Other Resources

Section	Details
Suggested Readings	1. Scientific Research by Cjt Kotharn & Gauty Garg 2. Design Thinking for Strategic Innovation by Idris Mootee 3. UGC Guidelines on Life Skills & Research Ethics 4. WIPO IP and Innovation Toolkits 5. Research Methodology: A Step-by-Step Guide for Beginners by Ranjit Kumar 6. How to Write and Publish a Scientific Paper by Barbara Gastel & Robert A. Day 7. Enhancing Employability in Higher Education Career Guidance and Skill Development by M. Dash & P. Mahapatra 8. Innovation and Entrepreneurship: Practice and Principles by Peter F. Drucker 9. Entrepreneurship Development (UGC/AICTE Recommended) by S.S. Khanka
Suggested Equivalent Online Courses	1. Scientific Research by Coursera – "Research Methods" (University of London) Understanding 2. edX – "Introduction to Scientific Research" (TU Delft) 3. LinkedIn Learning – "Master In-Demand Professional Soft Skills" 4. MIT OpenCourseWare – "Entrepreneurship 101: Who is your customer?" 5. Harvard Online – "Entrepreneurship Essentials" 6. Coursera – "Innovation: From Creativity to Entrepreneurship" (University of Illinois) 7. Online Platforms: NPTEL, Coursera, SWAYAM (Innovation, Entrepreneurship, Career Skills) 8. National Innovation and Startup Policy (NISP) by MHRD

This Scheme is based on the ORDINANCE -14 (2) PRINCIPLE (13/05/2025), of M.P Higher education ministry and UGC guidelines of NEP 202(

Part D - Assessment and Evaluation

Maximum Marks: 100	**Suggested continuous Evaluation Methods**	**Examination 100 Marks**
External Assignment: Exam 100 Time: 03.00 Hour	**Section (A):** Short Question (5) **Section (B):** Long Questions (5)	**Total - 100**
Any Remarks/Suggestion:		

... sosbotanyvu@rediffmail.com

VALUE ADDED COURSE- THEORY SYLLABUS

This Scheme is based on Ordinace-14 (2), of Ministry of Higher Education, Govt. of M.P. and UGC Guidelines of NEP-2020

Part- A- Introduction

Subject- Botany	**Class-** **M.Sc. (Botany)-** **I Year/ II Semester**	**Year-** **2025**	**Session-** **2025-26**
1	Course Code	CHM (Constitutional, Human and Moral Values)	
2	Course Title	Science, Society and Constitutional Morality.	
3	Course Type	VAC (Value Added Course)	
4	Pre-Requisite (If any)	Nil	
5	Course Learning Outcomes (CLOs)	1- To understand the interrelationship between science, society, and the Indian Constitution. 2- To know the core values and moral vision embedded in the Indian Constitution. 3- To develop a scientific temper and rational thinking as a civic responsibility. 4- To know how constitutional morality influences policy-making and societal norms. 5- To know ethical reasoning to real-world issues involving science and technology. 6- To understand one's role as a responsible and ethical citizen in a pluralistic society.	
6	Credit Value	02	
7	Total Marks	Maximum Marks-100 Minimum Passing Marks-40	

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Part- B- Contents of the Course

Total No of Lectures- Tutorials- Practical- 02 Hours /Week.

Unit	Topics	No. of Lectures
I	**Introduction to Science and Society** 1-Nature of science: objectivity, inquiry, evidence, and falsifiability Role of science in human development and problem-solving. 2- Historical interface of science and society in India. 3- Science and social transformation.	06
II	**Scientific Temper and Democratic Citizenship** 1-Scientific temper: concept and constitutional mandate (Article 51A(h). 2-Rationalism vs. superstition. 3- Role of media, education, and public engagement in promoting scientific temper. 4- Science communication and public trust.	06
III	**Constitution and Morality** 1-Meaning of constitutional morality. 2- Constitutional values: liberty, equality, justice, fraternity, dignity. 3- Role of Dr. B.R. Ambedkar in framing constitutional morality. 4- Case studies: Judiciary on constitutional morality (e.g., Navtej Johar, Sabarimala)	06
IV	**Science, Technology and Ethics in Public Life** 1- Ethics of emerging technologies: Al, biotechnology, data privacy. 2-Climate justice and sustainable development 3-Environmental ethics and constitutional duties 4-Ethical dilemmas in scientific research and policy-making.	06
V	**Constitutional Morality in Contemporary Contexts** 1-Pluralism, secularism, and minority rights. 2-Social justice movements and the scientific outlook. 3-Civic duties and scientific social responsibility. 4-Community science initiatives and citizen science.	06

Activities- As per the need of the department.

Assignments- As per the need of the department.

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Part- C- Learning Recourses

Text Books, References and other Resources

Section	Details
Suggested Reading	1. B.R. Ambedkar, Annihilation of Caste 2. Carl Sagan, The Demon-Haunted World: Science as a Candle in the Dark 3. Amartya Sen, The Idea of Justice 4. Indian Constitution (selected articles and preamble) 5. Science, Technology and Society Eugene Rosa, Thomas Dietz, and Richard York 6. Science, Technology and Society: An Introduction Wenda K. Bauchsples, Jennifer Croissant & Sal Restivo 7. The Structure of Scientific Revolutions-Thomas S. Kuhn 8. The Indian Constitution: Cornerstone of a Nation Granville Austin 9. The Constitution of India: A Contextual Analysis-Arvind Elangovan 10. UNESCO documents on science and ethics 11. Supreme Court judgments related to constitutional morality 12. Sheila Jasanoff (Ed.) States of Knowledge: The Co-Production of Science and the Social Order 13. Ethics in Science and Environmental Politics Benbrook & M. Elliott E. 14. Public Understanding of Science - Brian Wynne
Suggested Equivalent Online Courses	1. Science, Technology and Society: edX (Harvard, MIT collaboration) 2. Introduction to Philosophy: Ethics, Science and Religion: Coursera (University of Edinburgh) 3. Civic Engagement in a Constitutional Democracy: Future Learn (Davidson College) 4. Science, Technology and Society: NPTEL (IIT Guwahati)

Part- D- Assessment and Evaluation

Maximum Marks-100 **Minimum Passing Marks-40**	**Suggested Continuous Evaluation Methods**	**Examination Marks-100**
External Assignments- **Exam-100** **Time- 03 Hours.**	**Section A- Short Answer Questions-5** **Section B- Long Answer Questions-5**	**Total -100**